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ABSTRACT

This curriculum guide, developed for high schools in Connecticut, outlines a 4-year program for training microcomputer software technicians. Following a list of nine general objectives of the program, the guide provides a list of competencies that students are expected to develop in each of the courses of the 4-year program. The guide then outlines the curriculum. Topics covered during the program include the following: computer information, issues, and impacts; introduction to microcomputers; programming using BASIC; software packages; overcoming computer anxiety; personal growth; keyboarding; communication; word processing; spreadsheets; database management; integrated packages; computer information; microcomputer maintenance; disk operating system; desktop publishing and computer art; system analysis and design; introduction to management; advanced management; telecommunications; networking; operating systems; practicum; and independent study. A student progress record form with room for recording the teaching and mastery of all the skills taught in the course is included in the document. A bibliography lists 15 texts, 9 reference works 14 software packages, 24 types of equipment, and 20 computer-assisted instructional software programs. (KC)

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MICROCOMPUTER SOFTWARE TECHNICIAN

CURRICULUM

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PREPARED FOR:

CONNECTICUT STATE DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
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PREFACE

Hardly a day passes without computers affecting our lives. Computers continue to influence our choices of career paths. We are continually challenged to expand our understanding of the information and computer revolution, and keep in step with technological advancements. The integration of high-tech into the vocational-technical curriculum enables students to master the computer skills required to excel in our technology-based world.

It is our desire to provide a curriculum that responds to the total student. Therefore, we have designed a program of study called "Microcomputer Software Technician", that is responsive to the needs of the individual student as well as to the needs of business and industry.

By simulating conditions in the classroom that exist in the information processing industry, we are able to create a learning environment that teaches theory and provides hands-on experience. Thereby offering students training in high-tech areas that are current and appropriate to entry-level training or preparation for higher education.

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GENERAL OBJECTIVES

The students will:

Gain an understanding of the interdependence between the human and the computer system, becoming sensitive to the fact that people are the most important element in a system;

Develop good study and work habits;

Expand computer literacy skills as a foundation for techonological competency in the work environment;

Develop marketable, technical skills demanded by the job market;

Receive hands-on experience working with microcomputers;

Be prepared for postsecondary education;

Develop analytical, supervisory, and managerial skills;

Develop interpersonal skills, and leadership abilities;

Develop a pride and confidence in themselves and their craft.

COMPETENCIES

Grade 9

Introduction to Computer Information

A. History of Information Processing
B. Evolution of Computers
C. Commercial and Personal Uses
D. Employment Opportunities

Computer Information, Issues and Impacts

A. Computing and Organizations
B. Computing and Jobs
C. Robotics Systems
D. Artificial Intelligences
E. Data Communications
F. Networking
G. Individual Rights of Privacy
H. Computer Crime - Computer Law
I. Social Issues - Dependency
J. Education

Introduction to Microcomputers

A. Roles and Benefits of Microcomputers
B. Today's Microcomputers - Yesterday's Mainframes
C. Basic System
D. Configuration
E. Expansion
F. Peripherals
G. DOS
H. Storage Mediums
I. Disks
J. Care
K. Computer Lab Responsibilities

Introduction to Programming Using Basic

A. History of Basic
B. Four-Step Programming Process
C. Defining the Problem
D. Flowcharting
E. Template
F. Four Symbols

Introduction to Software Packages

A. Variety - Catalogs, Reviews
B. Read Box
C. Open Packages
D. Legal Responsibility
E. Manuals
F. Tutorials
G. Quick Start
H. Prepare Disks
I. Drivers
J. DOS

Overcoming Computer Anxiety

A. Handling Equipment
B. Develop Confidence
C. Success
D. Attitude
E. Have Fun

Personal Growth

A. Exploration of Self
B. Study Skills
C. Work Ethics
D. Logical Thinking
E. Responsibilities

Grade 10

Keyboarding

A. Home Row
B. Alphabetic Reaches
C. Numbers and Symbols
D. Function Keys
E. Numeric Keypad
F. Skill Building
G. Accuracy
H. Rhythm
I. Speed

Communication

A. Reading Comprehension
B. Problem Definition
C. Problem Solution
D. Grammar
E. Punctuation
F. Oral Presentation
G. Writing Skills

Word Processing

A. Software Commands
B. Write Text
C. Add, Change, Delete Text
D. Print Text

Spreadsheets

A. Software Commands
B. Design
C. Layout
D. Cell Formulas
E. Menus
F. Functions
G. Sort
H. Macros
I. Printing
    1. part
    2. whole
    3. sideways

Data Base Management

A. Software Commands
B. Design
C. Layout
D. Enter
E. Revise
F. Update
G. Calculate
H. Copy Records
I. Totals
J. Subtotals
K. Format
L. Print Reports
M. Macros

Integrated Packages

Word Processing, Spreadsheet, Data Base

A. Move Among Environments
B. Word Processing as Editor
C. Build Data Base
D. Spreadsheet Reports
E. Windows
F. Printing

Computer Information

A. Computer as a System
   1. Microcode
   2. Stored Programs
   3. Processor Unit
   4. Secondary Storage Devices
   5. I/O Devices
   6. System Console
   7. Log On/Off
   8. Enter Programs
   9. Compare Architecture

B. Data Representation
   1. Binary
   2. EBCDIC
   3. ASCII
   4. Octal
   5. Hexadecimal
   6. Storage Organization
   7. Arithmetic Binary and Hexadecimal
   8. Conversion Tables

C. Entering Data
   1. Methods
   2. Devices

D. Obtaining Information
   1. Printed Output
   2. Voice Output
   3. Equipment

E. Storing Data
   1. Storage Classifications
   2. Primary/Secondary
   3. Access/Cycle
   4. Sequential Direct Process
   5. Tape
   6. Disk
   7. Mass Storage

F. Processing Data
   1. The Processor
   2. Control Section
   3. Arithmetic Logic Unit
   4. Registers
   5. Counters
   6. Adders
   7. Serial
   8. Parallel
   9. Microprocessors

Microcomputer Maintenance

A. Set up
B. Peripherals
C. Connectors
D. Interfaces
E. Dip Switches
F. Cables
G. Testing
H. Cleaning
I. Timing Drives
J. Maintaining Printers

Programming Language - Basic

A. Vocabulary
    1. Language System
B. Math Review
C. Business Applications
    1. Lists
    2. Inventory
    3. Payroll
    4. Sales
    5. Labels
    6. Analysis
D. Computing
    1. Totals
    2. Subtotals
    3. Averages
    4. Tables
    5. Cost
    6. Commission
    7. Discounts
    8. Wages
    9. Profit/Loss
E. Documentation
    1. Write Logic
    2. Explain to User

Disk Operating System

A. DOS Fundamentals
    1. Set Up Disks
    2. I/O Devices
    3. Disk Organization
    4. Care of Disks
B. First Steps
    1. Installing DOS
    2. Date/Time
    3. Editing
C. Up and Running
    1. Menus
    2. Mouse and Keyboard
    3. Color
    4. Utilities

D. File System
   1. System Screen
   2. Nature Files
   3. Displaying Files
   4. Constructing Names
   5. Directory List
   6. Default Drive
   7. Subdirectories
   8. Director/Structure
E. Manipulating Files and Directories
   1. Screen Display
   2. Sorting Order
   3. Major File Operations
   4. Viewing File
   5. Moving File
   6. Copying File
   7. Renaming File
F. Hard Disk
   1. Directory Structure
   2. Paths
   3. Load Word Processing
   4. Load Spreadsheet
   5. Load Database
   6. Menus

Personal Growth

A. Critical Thinking
B. Winning Attitude
C. Listening and Discerning

Grade 11

Keyboard

A. Accuracy
B. Increase Speed
C. Rhythm

Communication

A. Reading Comprehension
   1. Problem Definition
   2. Problem Solution
B. Writing Skills
   1. Meaningful Content
   2. Introduction to Marketing
   3. Write Advertisement
C. Oral Presentation
   1. Present Content or Ad

Desk-Top Publishing and Computer Art

A. Software Commands
B. Menus
C. Applications
    1. Newsletters
    2. Technical manuals
    3. Marketing manuals
E. Create Graphics
    1. Design
    2. Layout
F. Combine Text and Graphics
G. Art Appreciation
H. Select Fonts
I. Draw
J. Print
K. Equipment
    1. Scanner
    2. Printer
    3. Mouse
    4. Light Pen

Spreadsheets
(Lotus 123)

A. Review Business Math
B. Review Accounting
C. Applications
    1. Petty Cash
    2. Sales Journal
    3. Cash Receipts
    4. Cash Disbursed
    5. Accounts Payable
    6. Accounts Receivable
    7. Bank Reconciliation
    8. Profit/Loss
    9. Balance Sheet
    10. General Ledger
    11. Depreciation Schedule
    12. Inventory
    13. Taxes
D. Graphics
    1. Pie Charts
    2. Line Graph
E. Special Interest

Data Base Management
(dBase III+)

A. Mail Merge
B. Labels
C. Advanced reports
D. File manipulation
E. Table lookup
F. More macros

Integrating Packages

A. Linking
B. Create Report
C. Print Report

Computer Information

A. Assembler
B. Programming in Assembly
C. Computer Operations
    1. Reading and writing with microprocessors
    2. Control units
    3. Calculating
        a. Floating-point operations
D. Microcomputers
E. Minis, Mainframes, and Monsters
F. System Analysis and Design
    1. What is a system?
    2. Preliminary investigation
    3. Detailed investigation

Microcomputer Maintenance

A. Diagnosing Problems
B. Replacing
    1. Logic Board
    2. Chips
    3. Disk Drives
    4. Broken Keys
D. Align Disk Drives
E. Interfacing Printers with Break-out Box

Programming in Basic

A. Structured Programming
    1. Subscripts
    2. Arrays
B. Sequential Files
C. Direct Access Files
D. Sorting Files
E. Advanced Functions
F. Case Study
    1. Define problem
    2. Define solution
    3. Write program

Disk Operating System

A. DOS Editor
B. Printing
C. Communications
    1. Parallel
    2. Serial

System Analysis and Design

A. Five Phases of Development
B. Preliminary Investigation
    1. Interview
C. Recommendation Report
    1. Written
D. Presentation of Recommendation
    1. Oral
E. Designing Programs Needed

Introduction to Management

A. Definition of Manager
B. Structure
    1. Organizational charts
    2. Lines of authority
    3. Data processing departments
C. Management Process
    1. Setting goals
    2. Planning
D. Motivation and Behavior
    1. Self
    2. Stress
    3. Budget
E. Communication
    1. Listening
F. Work in Group
G. Organize Project
    1. People
    2. Paper
H. Schedule
    1. Time
    2. Resources

Personal Growth

A. Appearance: Wardrobe Planning, Individual Style
B. Stress for Growth

Grade 12

Keyboarding

A. Key Strokes
    1. Word processing
    2. Spreadsheet
    3. Database
B. Speed (WPM)
C. Accuracy

Communication

A. Preparing for the Interview
    1. Cognitive skills
    2. Psychomotor skills
    3. Affective skills
        a. Simulation interview
        b. Ask questions
        c. Answer questions
        d. Evaluation
B. Writing the Resume
    1. Different styles
    2. Letter of application
    3. Fill out application
    4. Follow-up letter
        a. Error-free
        b. Neat

Word Processing

A. Displaywrite 4
B. Word Perfect
C. Microsoft Word

Desk-Top Publishing and Computer Art

A. Aldus Pagemaker
B. Post Script
C. Ventura
D. Dazzle Draw

Spreadsheets

A. Lotus 123
B. Symphony
C. Multiplan

Database Management

A. dBase III+
B. R:Base
C. Dataease

Integrated Packages

A. Windows
    1. New wave
    2. Data exchange

Computer Information

A. Super Conductors
B. Current Architecture
C. Compiled Languages
    1. Compilers
    2. Cobol
    3. Fortran or Pascal
    4. C
D. Operating Systems
    1. System software
    2. Application Software
    3. Time-share systems
E. Managing Data
    1. File systems
    2. Database
F. Data Communications
    1. System components
    2. Data transmission
    3. Local area networks
    4. Electronic mail
    5. Teleconferencing
    6. Computing services
G. FAX
    1. System components

Programming Language

A. Advanced Reports
    1. Programs with files
    2. Error trapping
    3. Documentation
    4. Presentation

Disk Operating System

A. New Generation Applications
B. Presentation Managers - OS/2
C. Environment

System Analysis and Design

A. Advanced Designing Systems
B. Development
C. Implementation
D. Evaluation

Advanced Management

A. What is Leadership
    1. Learned
    2. Styles
B. Team Work

C. Commitment
   1. Jobs
   2. Self
   3. Others
D. Responsibility
   1. Accept
E. Organizing
   1. Jobs
   2. Tasks
   3. Structure
F. Directing
   1. Motivating
   2. Leading
G. Controlling
   1. Measuring
   2. Evaluation

Telecommunications

A. Introduction
B. System Components
   1. Modem
   2. Fiber optics
   3. Data handling
C. Field Trip
   1. View system
   2. View conference
   3. Participate in conference

Networking

A. Research
   1. Hardware
   2. Software
B. Plan a System
   1. Floor space
   2. Equipment
   3. Cost
   4. User Needs

MICROCOMPUTER SOFTWARE TECHNICIAN

OUTLINE OF CURRICULUM

Freshman Year

In the Freshman Year, students become acclimated to the conduct and work-load required of them in the shop environment. They are introduced to computer equipment and its many uses. They begin their studies of Keyboarding, Word Processing, Spreadsheets, Database Management, and Computer Technology. Emphasis is placed on developing logical thinking by a structured approach to problem-solving using the programming language, Basic. They learn responsibility towards themselves, their fellow students and their surroundings. By developing good study and work habits, the students will gain confidence and a positive attitude in preparation for the work-world.

This is the time in which the students assess their interests and abilities, discover hidden talents and contemplate a vocation in Microcomputer Software Technology.

I. A Review of the Exploratory Program

II. An Introduction to:

A. Computer Information
   1. history of data processing
   2. evolution of computers
   3. commercial and personal uses
   4. business uses
      a. manufacturing
      b. medicine
      c. law
      d. education
      e. home
      f. communications
   5. employment opportunities

B. Computer Information, Issues and Impacts

   1. computing and organizations
   2. computing and jobs
   3. robotics systems
   4. artificial intelligence
   5. data communication
      a. fiber optics
   6. networking, Lan's
   7. individualism and right of privacy
   8. computer crime, viruses
   9. computer law, ethics
   10. social issues, dependency and vulnerability

C. Introduction to Microcomputers

1. role and benefits of personal computers
2. today's micros approach, yesterday's mainframes
3. the basic computer system
   a. configuration
   b. expansion capabilities
4. the system's peripherals
5. the system's software - DOS
6. storage mediums
   a. floppy disks
      1. care
      2. formatting
7. computer lab responsibilities

D. Introduction to Programming Using Basic

1. history of Basic
2. the four step programming process
   a. first step, defining the problem
3. flowcharting
   a. using a template
   b. four basic symbols

E. Introduction to Software Packages

1. variety of packages for home and business
2. open the package, now what?
3. legal responsibility
4. introduction to manuals/tutorials
5. how to prepare disks for use

F. Overcoming Computer Anxiety

1. handling equipment
2. attitude, developing confidence

G. Personal Growth

1. Study Skills
2. Work Ethics
3. Logical Thinking
4. Responsibilities

MICROCOMPUTER SOFTWARE TECHNICIAN

OUTLINE OF CURRICULUM

Sophomore Year

Students begin an intense full-year Information Processing program. Basic computing skills and a structured approach to problem solving is emphasized.

Specific areas of study are:

I. Keyboarding

- A. Home row
- B. Alphabetic reaches
- C. Numbers and symbols
- D. Function keys
- E. Numeric keypad
- F. Skill building, accuracy and speed

II. Communication

- A. Reading comprehension
  - 1. problem definition and solution
- B. Grammar
- C. Punctuation
- D. Writing skills
- E. Oral presentation

III. Word Processing

- A. Software commands
- B. Create text
- C. Add, change, delete text
- D. Print text

IV. Spreadsheets

- A. Software commands
- B. Design, create, layout
- C. Cell formulas
- D. Menus
- E. Functions
- F. Windows
- G. Sorts
- H. Macros
- I. Printing whole or part of a document
- J. Printing sideways

V. Database Management

- A. Software commands
- B. Design and layout

C. Enter, revise, update, delete data
D. Calculate
E. Copy records
F. Totals and group totals
G. Format and print reports
H. Macros

VI. Integrated Packages, Word Processing, Spreadsheets, Database

A. Windows
B. Move through different environments

VII. Computer Information

A. The computer as a system
    1. stored programs
    2. microcode
    3. functional units
        a. the processor unit
        b. secondary-storage devices
        c. input and output devices
        d. the system console
    4. communicating with the computer
        a. sign on/off
        b. entering programs
    5. compare current architecture and technology
B. Data presentation
    1. binary components
    2. binary notation
    3. EBCDIC, ASCII
    4. octal number system
    5. hexadecimal number system
    6. computer storage organization
    7. arithmetic with binary and hexadecimal
    8. conversion tables
C. Entering data
    1. methods and devices
D. Obtaining information
    1. printed output
    2. printers and plotters
    3. voice output
E. Storage data
    1. storage classifications
    2. primary/secondary storage
    3. access and cycle times
    4. sequential and direct processing
    5. tape, disk and mass storage
F. Processing data
    1. the processor
    2. the control section
    3. arithmetic/logic unit
    4. registers
    5. counters, adders
    6. serial/parallel operations
    7. microprocessors

VIII. Microcomputer Maintenance

- A. Set up
- B. Adding peripheral devices
- C. Connectors, interfaces, dip switches
- D. Testing, cleaning, timing disk drives
- E. Maintaining printers

IX. Programming Language - Basic

- A. Language vocabulary
- B. System vocabulary
- C. Business Math review
- D. Business reports and applications
  1. lists
  2. inventory
  3. payroll
  4. sales
  5. comparison analysis
  6. mailing labels
- E. Computing
  1. totals, subtotals
  2. interest
  3. averages
  4. conversion tables
  5. cost of goods sold
  6. commission
  7. discounts
  8. wages
  9. profit
- F. Program Documentation
  1. write clear explanation of program logic
  2. communicate with program users

X. Disk Operating System

- A. The fundamentals of DOS
- B. Your first steps with DOS
- C. Up and running
- D. Introducing the file system
- E. Manipulating files and directories
- F. Programs on a hard disk

XI. Personal Growth

- A. Critical Thinking
- B. Winning Attitude
- C. Listening and Discerning

MICROCOMPUTER SOFTWARE TECHNICIAN

OUTLINE OF CURRICULUM

Junior Year

During the Junior Year, students continue to advance their basic skills, but emphasis is now placed on developing supervisory and analytical skills. They are required to plan, organize and complete tasks utilizing the concepts of time and resource management.

Specific areas of study are:

I. Keyboarding

   A. Refining speed and accuracy

II. Communication

   A. Reading comprehension
      1. problem definition and solution
   B. Word processing - writing skills
      1. structuring documents
      2. meaningful content
      3. introduction to marketing
   C. Oral presentations

III. Desk-Top Publishing and Computer Art

   A. Software commands and menus
      1. applications
         a. newsletters
         b. technical manuals
         c. marketing manuals
   B. Create graphics
   C. Design and layout
   D. Combine text and graphics
      1. Lotus graphics with Ventura
   E. Art appreciation
   F. Learn to select fonts, draw, print
   G. Introduction to scanner
   H. Introduction to laser printer

IV. Spreadsheets (Lotus 123), Basic Bookkeeping Applications, Review Business Math, General Accounting

   A. Petty cash
   B. Summaries, control break, grand totals
   C. Sales and cash receipts journal
   D. Cash disbursements

E. Accounts payable and accounts receivable
F. Bank reconciliation
G. Profit and loss sheet
H. Balance sheet
I. General ledger
J. Depreciation schedule
K. Inventory
L. Taxes
M. Student special interest reports
N. Graphics, pie charts, line graphs

V. Data Base Management (dBase III+)

A. Mail merge
B. Labels
C. Advanced reports
D. File manipulation
E. Table lookup
F. More macros

VI. Integrating Word Processing, Spreadsheet, Database Advanced Capabilities

A. Linking independent packages

VII. Computer Information

A. Using an assembler
B. Programming in assembly
C. Computer operations
    1. reading and writing with microprocessors
    2. control units
    3. calculating
        a. floating-point operations
D. Microcomputers in use
E. Minis, mainframes, and monsters
F. System analysis and design
    1. what is a system?
    2. preliminary investigation
    3. detailed investigation

VIII. Microcomputer Maintenance

A. Diagnosing problems
B. Replacing logic board and disk drive
C. Replacing chips and broken keys
D. Aligning disk drives using cat's eye and scope
E. Interfacing printers using break-out box

IX. Programming Language - Basic

A. Arrays, subscripts
B. Structured programming
C. Sequential files
D. Direct access files

E. Sorting files
F. Advanced functions
G. Case studies - business applications

X. Disk Operating System

A. Using the DOS editor
B. Printing
C. Communications
    1. parallel vs. serial communications

XI. System Analysis and Design (Five Phases of Development)

A. Preliminary Investigation - Interviewing (1)
B. Recommendation Report - Writing (2)
C. Presentation of Recommendation - Oral (2)
D. Designing Programs Needed (3)

XII. Introduction to Management

A. What is a manager?
B. Structure
    1. organizational charts
    2. lines of authority
    3. data processing departments
C. Management process
    1. setting goals
    2. planning
D. Motivation and behavior
    1. self-management
    2. stress management
    3. budget management
E. Communication
    1. listening
F. Group dynamics
G. Organizing projects
H. Scheduling
    1. time and resource management

XIII. Personal Growth

A. Appearance
    1. Dressing for success
        a. wardrobe
        b. individual style
        c. confidence
B. Stress for Growth
    1. Handling adversity

MICROCOMPUTER SOFTWARE TECHNICIAN

OUTLINE OF CURRICULUM

Senior Year

During the Senior Year, students work with the current software packages. Case studies are used to simulate general use of these packages in office situations. Students analyze and design a computer system, placing emphasis on design, development, implementation and evaluation. They are encouraged to work on school projects, to expand their supervisory and managerial skills.

Specific areas of study are:

I. Keyboarding

- A. Key strokes or combination of key strokes are different depending on the software package. Learning to move freely and confidently between the packages.
- B. Speed and accuracy

II. Communication

- A. Preparing for the interview
  1. cognitive skills
  2. psychomotor skills
  3. affective skills
     - a. simulation interview
     - b. evaluation
- B. Writing the resume
  1. different styles
  2. letter of application
  3. application
  4. follow-up letter
     - a. neat, accurate and error-free

III. Word Processing

- A. Displaywrite 4
- B. Word Perfect
- C. Microsoft Word

IV. Desk-Top Publishing and Computer Art

- A. Aldus Pagemaker
- B. Post Script
- C. Ventura
- D. Dazzle Draw

V. Spreadsheets

A. Lotus 123
B. Symphony
C. Multiplan Advantage II

VI. Database Management

A. dBase III+
B. R:Base System V
C. Dataease

VII. Integrated Packages

A. Windows
    1. New wave environment, technology
    2. Dynamic data exchange - DDE

VIII. Computer Information

A. Super conductors - future high-tech
B. Current architecture of the microcomputer
C. Compiled programming languages
    1. Compilers
    2. Cobol
    3. Fortran or Pascal
    4. C
D. Operating systems
    1. system and application software
    2. time-sharing systems
E. Managing data
    1. file systems
    2. database
F. Data communications
    1. system components
    2. data transmission
    3. local area networks
    4. electronic mail
    5. teleconferencing
    6. computing services
G. FAX
    1. system components

IX. Programming Language - Basic (Writing Spreadsheets and Accessing Database)

A. Programs with files
B. Error trapping
C. Documentation and presentation

X. Disk Operating System

A. New generation applications
   1. presentation managers - OS/2
B. Architecture
C. Environment

XI. System Analysis and Design (Five Phases of Development)

A. Advanced - designing systems (3)
B. Development (4)
C. Implementation (5)
D. Evaluation (5)

XII. Advanced Management

A. Leadership and leadership styles
   1. team work
B. Commitment to job, self and others
C. Responsibility
D. Organizing
   1. designing jobs, tasks and structure
E. Directing
   1. motivating and leading
F. Controlling
   1. measuring degree of goal attainment

XIII. Telecommunications

A. Introduction to telecommunications
   1. data communications, fiber optics
B. Field trip, view system and conference

XIV. Networking

A. Research hardware/software
   1. host computer, shared processor
B. Planning a system (Lan's)
   1. determining floor space
   2. user needs
   3. cost

XV. Operating Systems

A. Apple - DOS 3.3, Pro DOS
B. IBM - MS DOS, CP/M-86
C. IBM PS/2 - OS2
D. Macintosh
E. Unix

MICROCOMPUTER SOFTWARE TECHNICIAN

SENIOR YEAR

Practicum

At mid-year, seniors will have the opportunity to participate in a practicum in the business community. Students will keep journals and give reports to their classmates, comparing their experiences "on-the-job".

Specific areas of involvement are:

A. Internships
B. Interviewing process
C. Attending workshops
D. Senior project
E. Shadowing
F. Entrepreneur opportunities
G. Introduction to sales

Independent Study

A series of courseware is available to help the student experience this time of introspection and planning.

Computer-Assisted Instructional Software:

Financial Planning Simulation, Career Aids

1. Money Managers
2. World of Work
3. Purchase Power

Starting a New Business, Career Aids

Survival Skills: Living on Your Own, Career Aids

Job Readiness, Opportunities for Learning, Inc.

Finding and Following Job Opportunities, Opportunities for Learning, Inc.

The Right Resume Writer, Opportunities for Learning, Inc.

Resume Processor with Letter Writing Tutorial, Opportunities for Learning, Inc.

Resume Maker and Application Maker, Opportunities for Learning, Inc.

Successful Interviewing, Opportunities for Learning, Inc.

Interview Scenario, Opportunities for Learning, Inc.

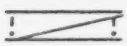
STUDENT PROGRESS RECORD

STUDENT PROGRESS RECORD

A major principle of vocational education is that students learn skills or the performance of operations of a trade with the production job as a vehicle to accomplish this objective.

The operations are defined on the shop progress record and it is imperative that the instructor have some means of recording the student experiences and achievement.

The approved method of recording student progress is as follows:



INSTRUCTED - This designation on the progress record indicates that the student has performed a skill with the assistance of and under the supervision of the instructor.

PRACTICED - This designation on the progress record indicates that the student has performed a skill with little help from the instructor.

PROFICIENT - This designation on the progress record indicates that the student is capable of performing a skill within a reasonable amount of time with no assistance from the instructor. In effect, this implies that the student has been tested for that skill.

This method of noting student progress will define accurately student achievement and, in fact, will point out any weaknesses the student may have in certain operations; thus highlighting areas where the student may need help.

Grades should be kept on student daily progress cards or in roll books.

Grade _____ Year _____ Instructor _____

STUDENT	TOOL CHECK NO.	LOCKER NO.	TEXT BOOK NO.	SHOP GRADES MARKING PERIOD						THEORY GRADES MARKING PERIOD					
				1	2	3	4		F	1	2	3	4		F

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Grade_____ Year_____ Instructor_____

TOOL CHECK NO.	LOCKER NO.	TEXT BOOK NO.	SHOP GRADES MARKING PERIOD						THEORY GRADES MARKING PERIOD					
			1	2	3	4		F	1	2	3	4		F

Grade_____ Year_____ Instructor_____

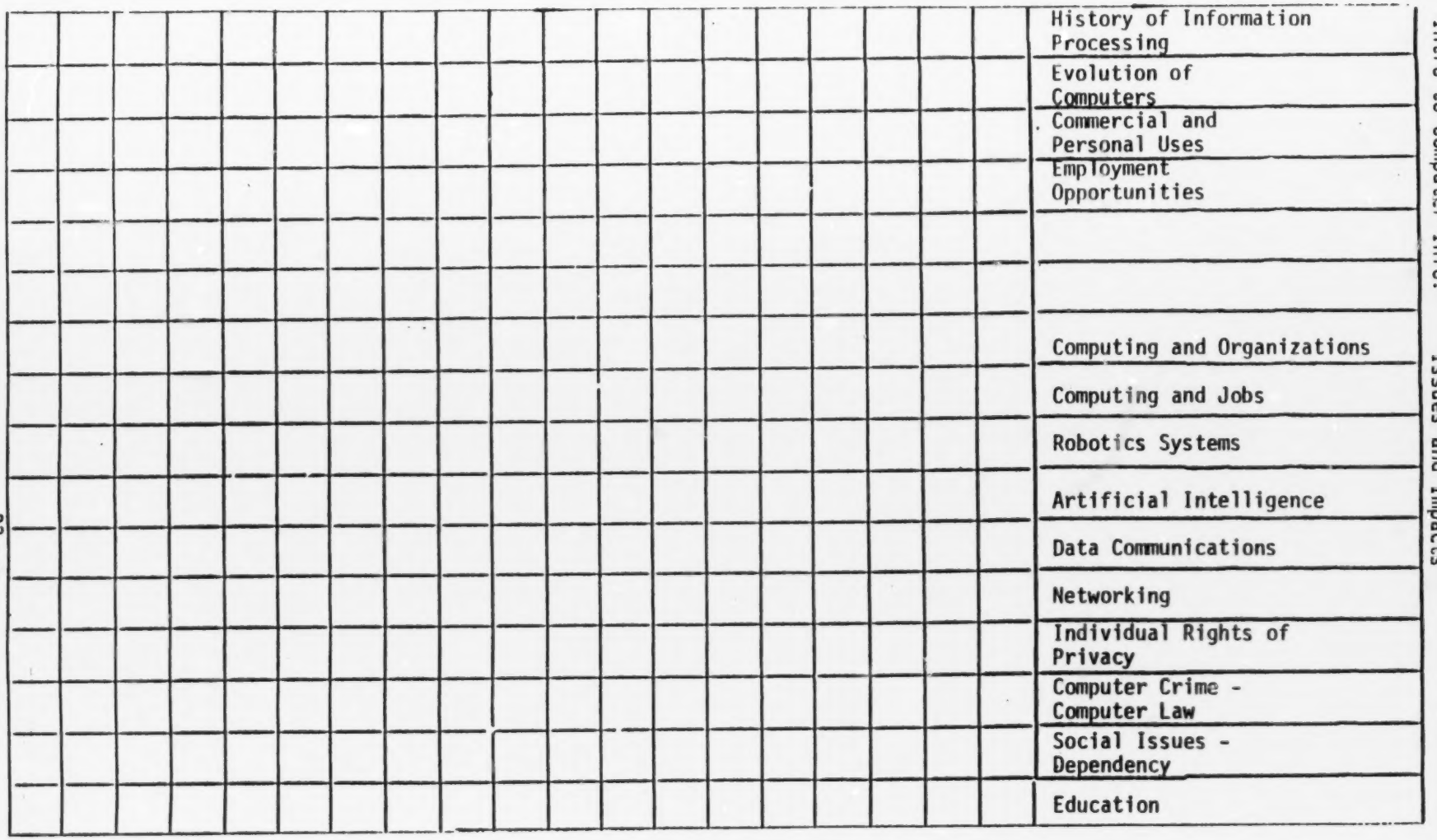
TOOL CHECK NO.	LOCKER NO.	TEXT BOOK NO.	SHOP GRADES MARKING PERIOD						THEORY GRADES MARKING PERIOD					
			1	2	3	4		F	1	2	3	4		F

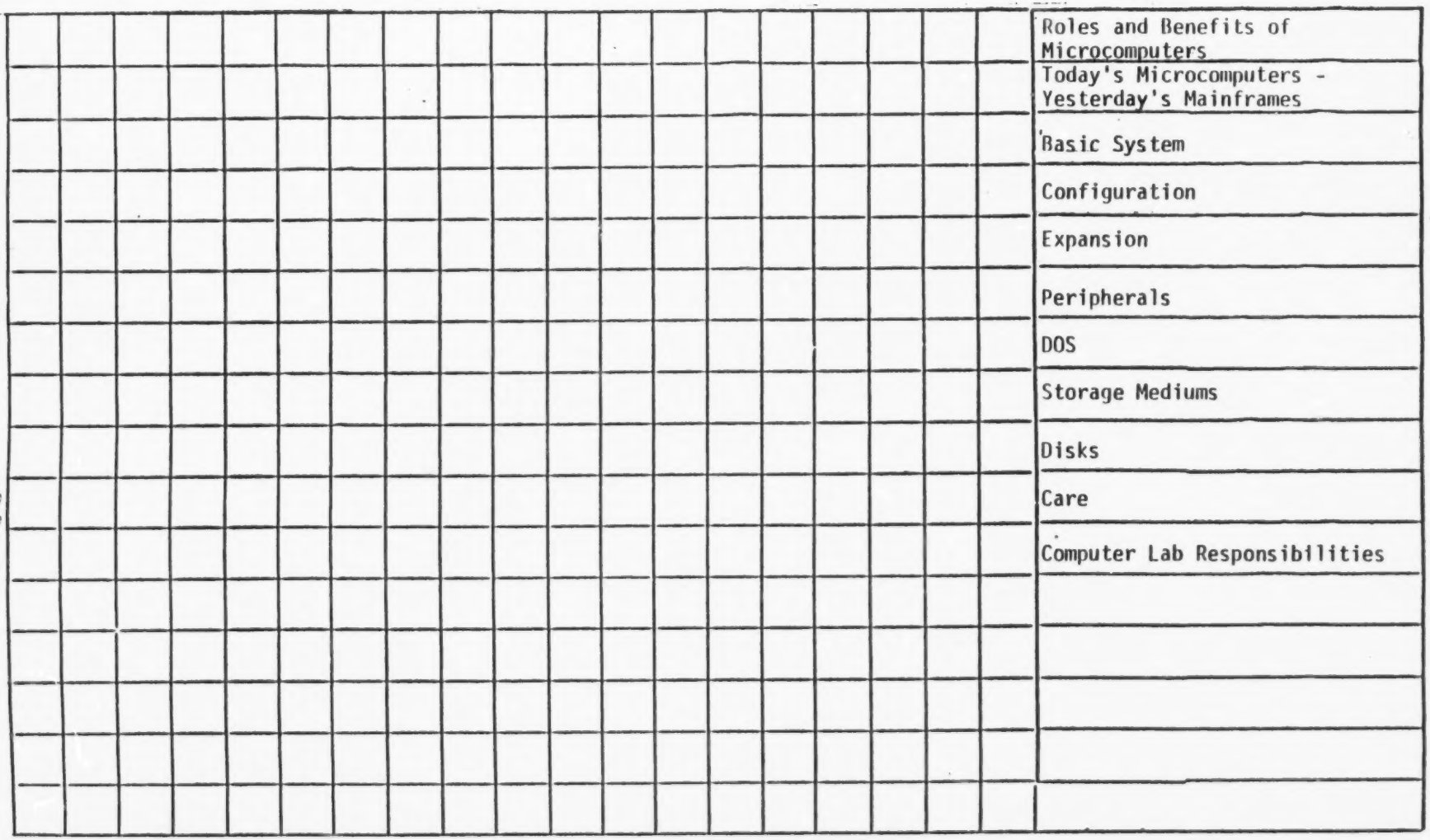
Grade_____ Year_____ Instructor_____

TOOL CHECK NO.	LOCKER NO.	TEXT BOOK NO.	SHOP GRADES MARKING PERIOD						THEORY GRADES MARKING PERIOD					
			1	2	3	4		F	1	2	3	4		F

Grade_____ Year_____ Instructor_____

TOOL CHECK NO.	LOCKER NO.	TEXT BOOK NO.	SHOP GRADES MARKING PERIOD						THEORY GRADES MARKING PERIOD					
			1	2	3	4		F	1	2	3	4		F


History of Information Processing
Evolution of Computers
Commercial and Personal Uses
Employment Opportunities
Computing and Organizations
Computing and Jobs
Robotics Systems
Artificial Intelligence
Data Communications
Networking
Individual Rights of Privacy
Computer Crime - Computer Law
Social Issues - Dependency
Education


Roles and Benefits of Microcomputers
Today's Microcomputers - Yesterday's Mainframes
Basic System
Configuration
Expansion
Peripherals
DOS
Storage Mediums
Disks
Care
Computer Lab Responsibilities

Intro to Programming Using Basic

Intro to Software Packages

	History of Basic	Four-Step Programming Process	Defining the Problem	Flowcharting	Template	Four Symbols			Variety - Catalogs, Reviews	Read Box	Open Packages	Legal Responsibility	Manuals	Tutorials	Quick Start	Prepare Disk

Intro to Software Packages				Overcoming Computer Anxiety					Personal Growth							
	Drivers	DOS			Handling Equipment	Develop Confidence	Success	Attitude	Have Fun			Exploration of Self	Study Skills	Work Ethics	Logical Thinking	Responsibilities

Grade 10
Keyboarding

Communication

Home Row	Alphabetic Reaches	Numbers and Symbols	Function Keys	Numeric Keypad	Skill Building	Accuracy	Rhythm	Speed		Reading Comprehension	Problem Definition	Problem Solution	Grammar	Punctuation	Oral Presentation

Word Processing

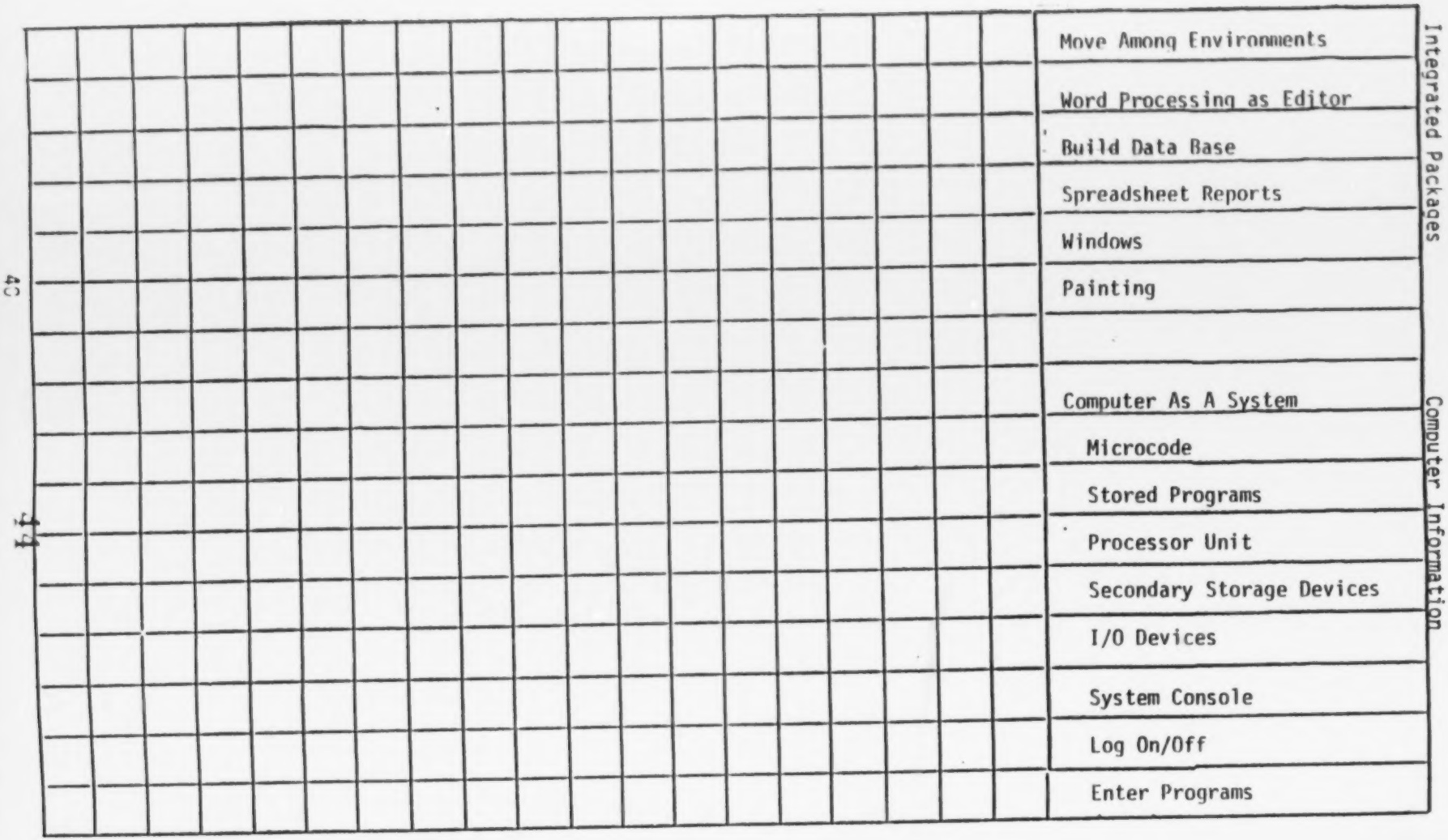
Software Commands	Write Text	Add, Change, Delete Text	Print Text	

Spreadsheets

Software Commands	Design	Layout	Cell Formulas	Menus	Functions	Sort	Macros	Printing--Whole	Part	Sideways

Data Base Management

Software Commands	Design	Layout	Enter	Revise	Update	Calculate	Copy Records	Totals	Subtotals	Format	Print Reports	Macros			


Move Among Environments
Word Processing as Editor
Build Data Base
Spreadsheet Reports
Windows
Painting
Integrated Packages
Computer As A System
Microcode
Stored Programs
Processor Unit
Secondary Storage Devices
I/O Devices
System Console
Log On/Off
Enter Programs
Computer Information

Computer Information (cont'd)

Compare Architecture	Data Representation	Binary	EBCDIC	ASCII	Octal	Hexadecimal	Storage Organization	Arithmetic Binary and Hexadecimal	Conversion Tables	Entering Data	Methods	Devices	Obtaining Information	Printed Output	Voice Output

Computer Information (cont'd)

Equipment	Storing Data	Storage Classifications	Primary/Secondary	Process/Cycle Time	Sequential Direct Process	Tape	Disk	Mass Storage		Processing Data	The Processor	Control Section	Arithmetic Logic Unit	Registers	Counters

Computer Information (cont'd)

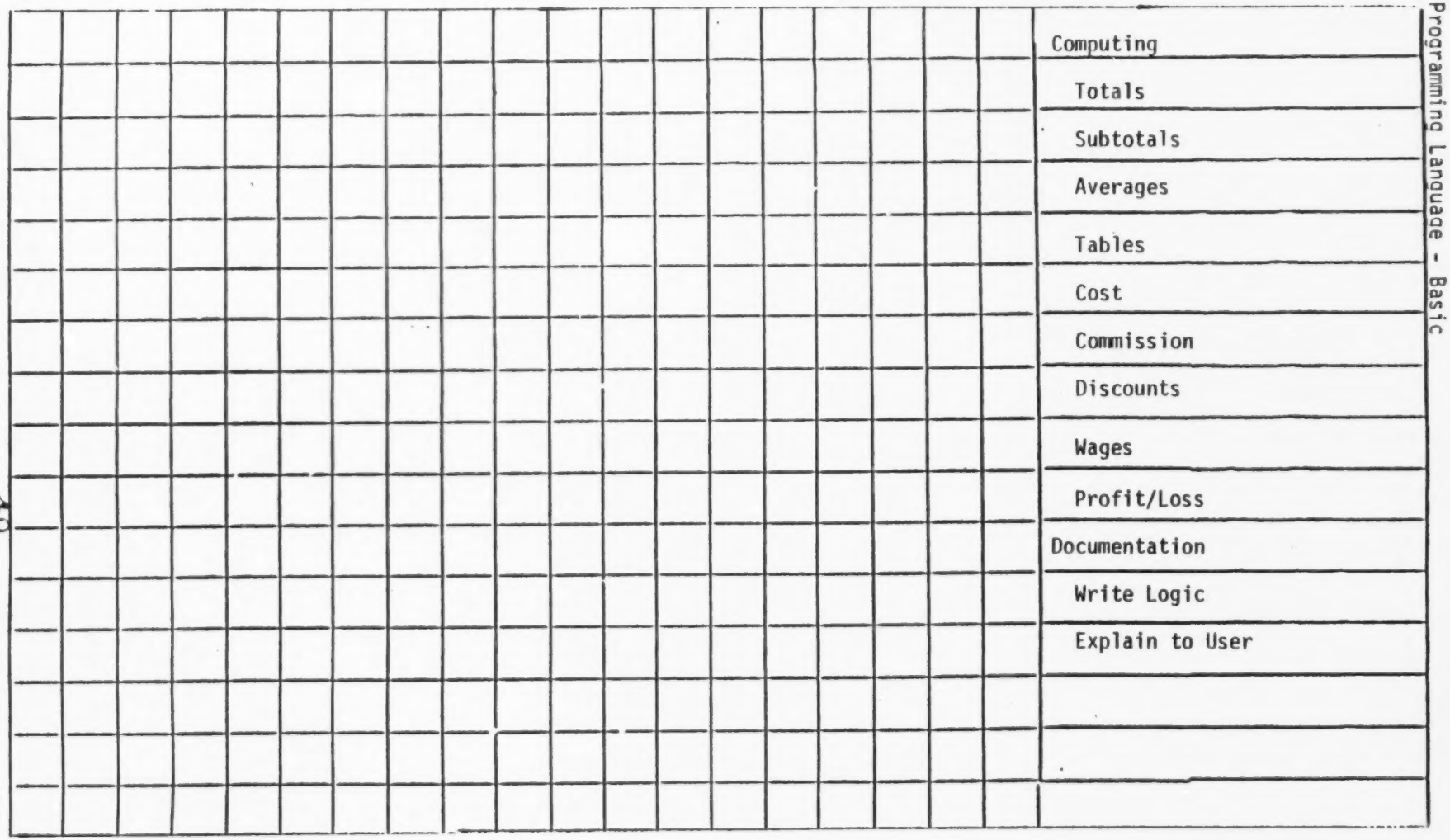
Microcomputer Maintenance

Adders	Serial	Parallel	Microprocessors					Set Up	Peripherals	Connectors	Interfaces	Dip Switches	Cables	Testing	Cleaning

Microcomputer Maintenance (cont'd)

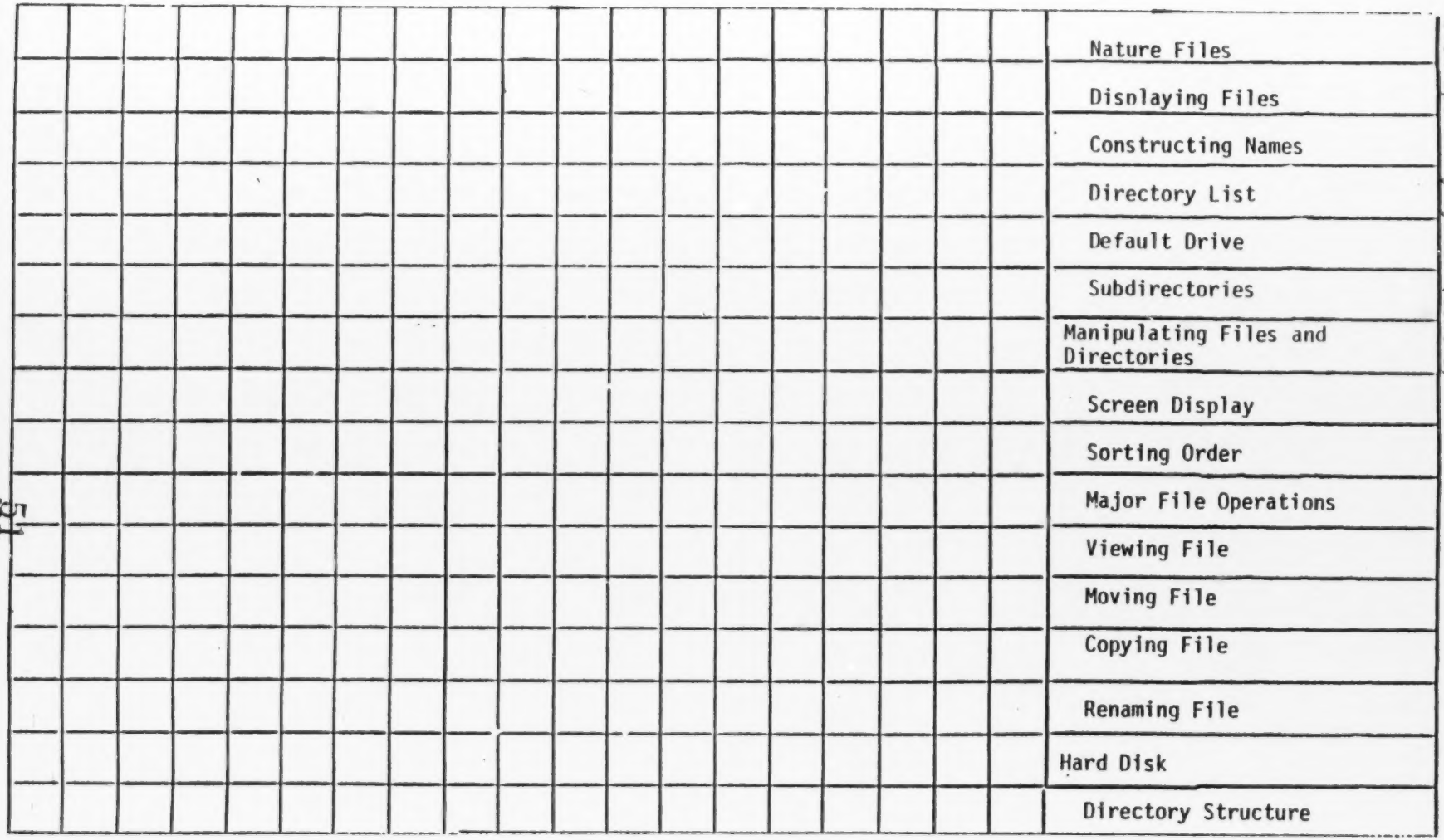
Programming Language - Basic

Timing Drives	Maintaining Printers					Vocabulary	Language Systems	Math Review	Business Applications	Lists	Inventory	Payroll	Sales	Labels	Analysis


Computing
Totals
Subtotals
Averages
Tables
Cost
Commission
Discounts
Wages
Profit/Loss
Documentation
Write Logic
Explain to User

Disk Operating System

DOS Fundamentals	Set up disks	I/O Devices	Disk Organization	Care of Disks	First Steps	Installing DOS	Date/Time	Editing	Up and Running	Menus	Mouse and Keyboard	Color	Utilities	File System	System Screen


Nature Files
Displaying Files
Constructing Names
Directory List
Default Drive
Subdirectories
Manipulating Files and Directories
Screen Display
Sorting Order
Major File Operations
Viewing File
Moving File
Copying File
Renaming File
Hard Disk
Directory Structure

Disk Operating System (cont'd)

Personal Growth

Paths	Load Word Processing	Load Spreadsheet	Load Database	Menus		Critical Thinking	Winning Attitude	Listening and Discerning							

Grade 11
Keyboard

Communication

	Accuracy	Increase Speed	Rhythm		Reading Comprehension	Problem Definition	Problem Solution	Writing Skills	Meaningful Content	Introduction to Marketing	Write Advertisement	Oral Presentation	Present Content or Ad			

Desk-Top Publishing and Computer Art

Software Commands																				
Menus																				
Applications																				
Newsletters																				
Technical Manuals																				
Marketing Manuals																				
Create Graphics																				
Design																				
Layout																				
Combine Text and Graphics																				
Art Appreciation																				
Select Fonts																				
Draw																				
Print																				
Equipment																				
Scanner																				

Desk-Top Publishing & Computer Art (cont'd)

Spreadsheets

Printer	Mouse	Light Pen						Review Business Math	Review Accounting	Applications	Petty Cash	Sales Journal	Cash Receipts	Cash Disbursed	Accounts Payable	Accounts Receivable

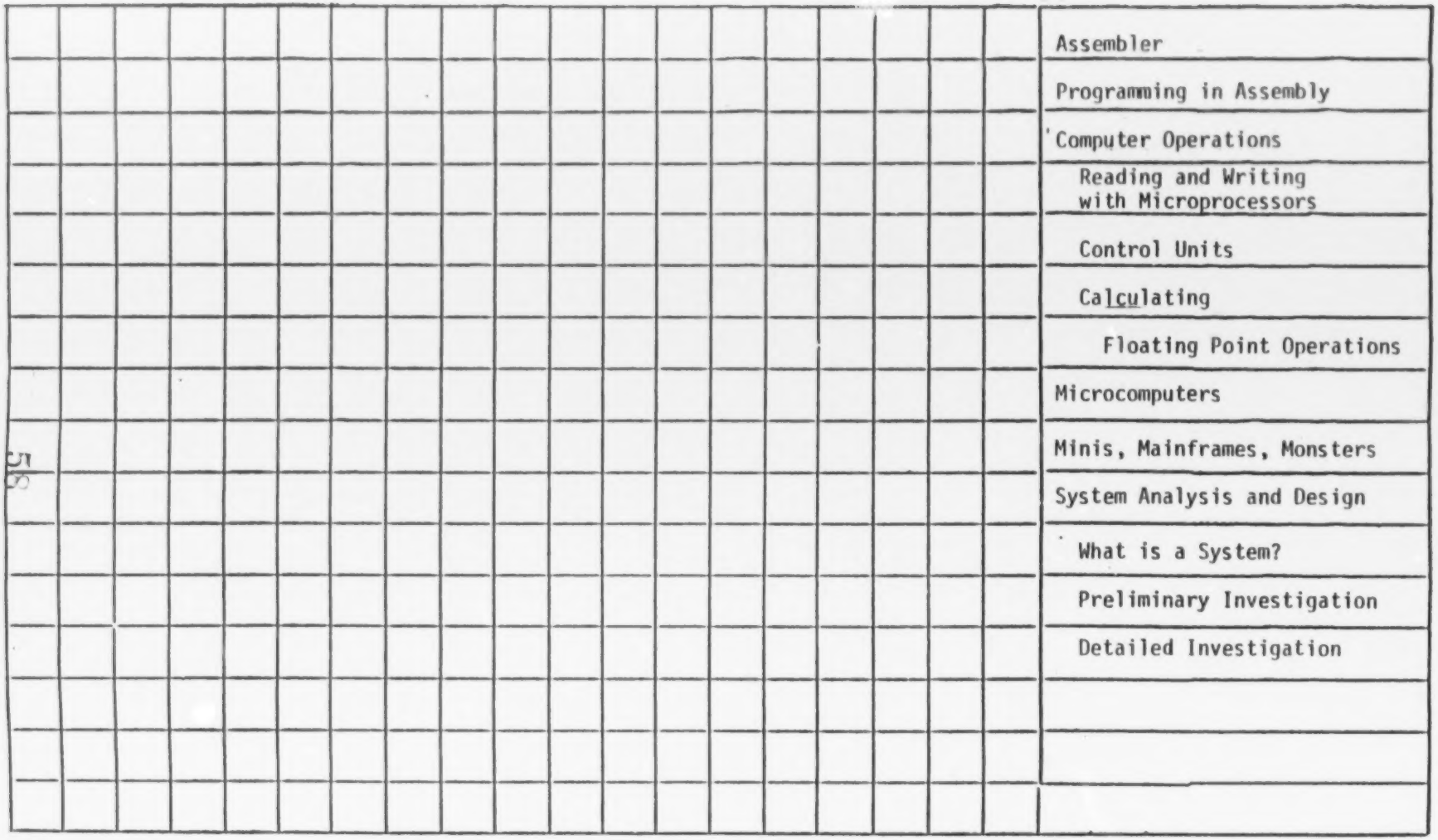
Spreadsheets (cont'd)

Bank Reconciliation	Profit/Loss	Balance Sheet	General Ledger	Depreciation Schedule	Inventory	Taxes	Graphics	Pie Charts	Line Graph	Special Interest					

Data Base Management

Integrating Packages

Mail Merge	Labels	Advanced Reports	File Manipulation	Table lookup	More Macros						Linking	Create Report	Print Report		


Assembler
Programming in Assembly
Computer Operations
Reading and Writing with Microprocessors
Control Units
Calculating
Floating Point Operations
Microcomputers
Minis, Mainframes, Monsters
System Analysis and Design
What is a System?
Preliminary Investigation
Detailed Investigation

Microcomputer Maintenance

Programming in Basic

	Diagnosing Problems	Replacing	Logic Board	Chips	Disk Drives	Broken Keys	Align Disk Drives	Inzerfacing Printers		Structured Programming	Subscripts	Arrays	Sequential Files	Direct Access Files	Sorting Files	Advanced Functions

Programming in Basic (cont'd)

Disk Operating System

Case Study	Define problem	Define solution	Write program				DOS Editor	Printing	Communications	Parallel	Series				

System Analysis and Design

Intro to Management

Five Phases of Development
Preliminary Investigation
Interview
Recommendation Report
Written
Presentation of Recommendation
Oral
Designing Programs Needed
Definition of Manager
Structure
Organizational Charts
Lines of Authority
Data Processing Departments
Management Process

Intro to Management (cont'd)

	Setting Goals	Planning	Motivation and Behavior	Self	Stress	Budget	Communication	Listening	Work in Group	Organize Project	People	Paper	Schedule	Time	Resources	

Personal Growth

	Appearance	Wardrobe	Style	Confidence	Good Stress											

GRADE 12

Keyboarding

Communication

Key Strokes	Word Processing	Spreadsheet	Database	Speed (WPM)	Accuracy			Preparing for the Interview	Cognitive skills	Psychomotor skills	Affective skills	Simulation Interview	Ask questions	Answer questions	Evaluation

Communication (cont'd)

Word Processing

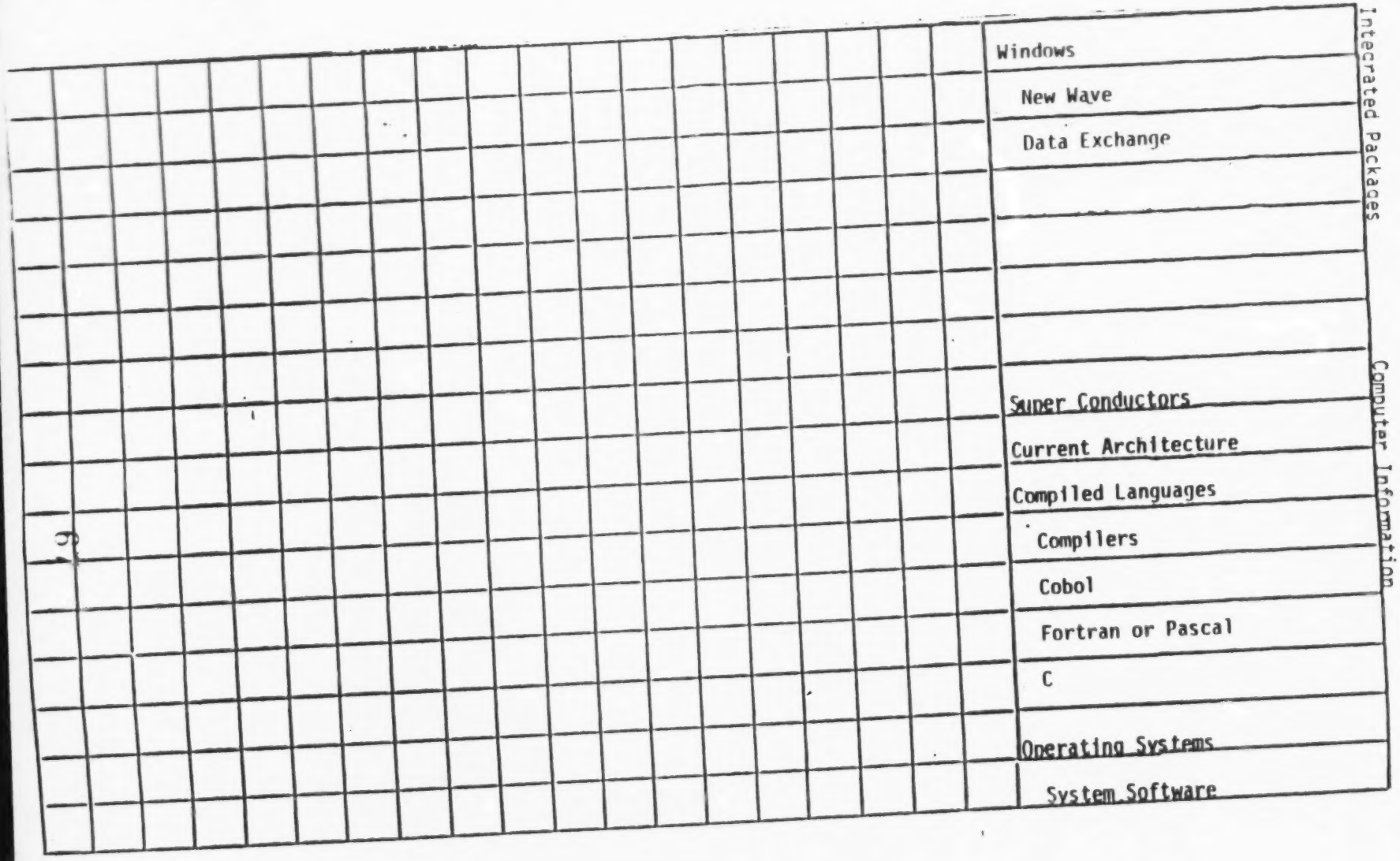
	Writing the Resume	Different Styles	Letter of Application	Fill out Application	Follow-up Letter	Error-free	Neat			Displaywrite 4	Word Perfect	Microsoft Word				

Desk-Top Publishing &
Computer Art

Spreadsheets

Database Management

Aldus Pagemaker	Post Script	Ventura	Dazzle Draw			Lotus 123	Symphony	Multiplan			dBase III+	R:Base	Dataease		


Intecrated Packages
Windows
New Wave
Data Exchange
Computer Information
Super Conductors
Current Architecture
Compiled Languages
Compilers
Cobol
Fortran or Pascal
C
Operating Systems
System Software

Computer Information (cont'd)

Application Software
Time-Share Systems
Managing Data
File Systems
Database
Data Communications
System Components
Data Transmission
Local Area Networks
Electronic Mail
Teleconferencing
Computing Systems
FAX
System Components

Programming Language | Disk Operating System | System Analysis and Design

Advanced Reports	Programs with files	Error trapping	Documentation	Presentation			New Generation Applications	Presentation Managers - OS/2	Environment			Advanced Designing Systems	Development	Implementation	Evaluation

What is Leadership?	Learned	Styles	Team Work	Commitment	Jobs	Self	Others	Responsibility	Accept	Organizing	Jobs	Tasks	Structure	Directing	Motivating

Advanced Management

Telecommunications

Leading	Controlling	Measuring	Evaluation			Introduction	System Components	Modem	Fiber Optics	Data Handling	Field Trip	View System	View Conference		

Networking

Research	Hardware	Software	Plan a System	Floor Space	Equipment	Cost	User Needs								

BIBLIOGRAPHY

TEXTS:

Bohl, Marilyn, Information Processing with Basic, 4th Edition, Science Research Associates, Inc., Chicago, 1984

Boillot, Gleason and Horn, Essentials of Flowcharting, 4th Edition, William C. Brown Co., 1985

Bracey, Sanford and Quick, Basic Management, An Experience-Based Approach, Business Publications, Inc., 1981

DeVoney and Summe, IBMs Personal Computer Que on System, Que Corp., 1982

Dean and Clayton, Appleworks, Integrated Applications, South-Western Publishing Co., 1987

French, Jacobs, Moulds and Schuchman, Computer Literacy, Allyn and Bacon, Inc., 1986

Jorgensen, Carolyn, Mastering 1-2-3, 2nd Edition, Sybex, 1988

Lasselle, Joan and Ramsay, Carol, The ABC's of the IBM PC and Compatibles, 2nd Edition, SYBEX, San Francisco, 1988

Nogales and McAllister, Appleworks for Teachers, Franklin, Beedle and Associates, 1987

Presley, Bruce, A Guide to Programming the IBM Personal Computer, 2nd Edition, Delmar Publishers, Inc., 1985

Robbins, Judd, Mastering DOS, Sybex, 1988

Shelly, Gary B. and Cashman, Thomas J., Business Systems Analysis and Design, 7th Edition, Anaheim Publishing Co., St. Brea, CA 92621, 1975

Shelly, Gary B. and Cashman, Thomas J., Computer Fundamentals with Application Software, Boyd and Fraser, 1986

Simpson, Alan, Understanding dBase III+, Sybex, 1986

Stern, Nancy, Flowcharting, A Self-Study, John Wiley & Sons, Inc., 1975

REFERENCE LIST:

Baird, Andrew, Communication for Business and the Professions, Wm. C. Brown, 1989

Clark and LaBarre, Advanced Structured Basic, South-Western Publishing Co., Inc., 1985

Kruse, B., Desktop Publishing, Delmar Publishers, Inc., 1989

Mandell, Steven, Complete BASIC Programming, West Publishing Co.

March, Seabrook, Programming in C, Delmar Publishers, Inc., 1989

McCullough, Mathematics for Data Processing, Wm. C. Brown, 1988

Presley, Bruce, A Guide to Programming in Basic-Plus, Delmar Publishers, Inc., 1983

Simkin and Dependahl, Microcomputer Principles and Applications, Wm. C. Brown, 1988

Wilson, Hantz and Hanna, Interpersonal Growth through Communication, Wm. C. Brown, 1989

SOFTWARE USED:

Aldus Pagemaker
Apple Writer II Word Processing Package
Appleworks Integrated Package
DOS 3.3, Pro DOS, MS DOS Operating Systems
Dazzle Draw
Graphics programs
Lotus 123
Microsoft Word
Self-written DOS 3.3 Basic Programs
Symphony
Word Processing
dBase - III+
Unix
C

EQUIPMENT USED:

Apple Computers
Apple Computers
Apple IIE 128K, Double Disk Drive Computer
Apple IIE Computer
Apple IIE, IBM PS/2, Macintosh Computers
Break-out Box
Brother Daisy Wheel Printers
Daisy Wheel Printer
Dot Matrix Printer
Epson, Apple, C.ITOH Dot Matrix Printers
Fax
Hewlett-Packard Laser Jet Printer
Host computer, networking equipment

EQUIPMENT USED: (continued)

IBM 386 PS/2
IBM Computers
IBM Computers
IBM PS/2
IBM PS/2 Computer
Laser Jet Printer
Macintosh Computer
Modem
New equipment
Plotter
Plotters, Scanners
Scanner
State-of-the-art printers

COMPUTER-ASSISTED INSTRUCTIONAL SOFTWARE:

Study Skills and Job Success Series, Opportunities for Learning, Inc.
Self-Exploration Series, Opportunities for Learning, Inc.
Reading, Writing and Math, Merit
Keyboarding, Opportunities for Learning, Inc.
Oral Communications, Career Aids
Stress Management, Career Aids
Positive Attitude Towards Work, Opportunities for Learning, Inc.
Looking Good, Opportunities for Learning, Inc.
Winning Combination, Opportunities for Learning, Inc.
How Fast Can You Type Right?, Career Aids
Choosing a College Major, Opportunities for Learning, Inc.
Financial Planning, Career Aids
Starting a New Business, Career Aids
Survival Skills, Living on Your Own, Career Aids
Job Readiness, Opportunities for Learning, Inc.
Finding and Following Job Opportunities, Opportunities for Learning, Inc.
The Right Resume Writer, Opportunities for Learning, Inc.
Resume Processor With Letter-Writing Tutorial, Opportunities for Learning, Inc.
Successful Interviewing, Opportunities for Learning, Inc.
Interview Scenario, Opportunities for Learning, Inc.